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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,773	02/21/2007	Yoshihiko Ota	NOZUE.021AUS	7252

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EXAMINER
LOPEZ, RICARDO E.

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,773	OTA ET AL.	
	Examiner	Art Unit	
	RICARDO E. LOPEZ	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/21/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being unpatentable over Konishi et al. JP-2002069824 A.

3. Considering claim 1, Konishi et al. teaches a sound absorbing material that consists of nonwoven fabric (NF) formed by integrating fine fibers into planar shape and a laminate with thickness 5-50 mm. The laminate consists of spun bond nonwoven fabric with weight of 10-100 g/m2, melt blown nonwoven fabric having apparent density of 0.1-0.4 g/cm3 and weight of 5-300 g/m2 and polyester, on both sides of the nonwoven fabric (Abstract).

Konishi et al. also teaches that the resin used for the melt blown nonwoven fabric is a mixture of polyethylene terephthalate and poly butylene terephthalate; and that this polyester mixture excels in heat resistance and, in promoting addition between the polyester spunbonded nonwoven fabric and the melt-blown nonwoven fabric consisting of the polyester mixture just described [0007].

Furthermore, Konishi et al. also teaches that in order to compensate the lack of abrasion resistance of the melt blown nonwoven fabric comprised by the sound absorbing material, said melt blown nonwoven fabric is covered on one or both sides using a polyester spunbonded nonwoven fabric which was excellent in wear intensity. That is, when a metsuke arranges a spunbonded nonwoven fabric in which the degree of lamination consists of polyester fiber of 1 - 11dtex by 10 - 100 g/m2 on the surface of a melt-blown nonwoven fabric, surface wear intensity improves remarkably and sound absorption performance of a sound absorbing material is maintained over a long period of time [0011]. Moreover, Konishi et al. also teaches that it is desirable to perform adhesion of a melt-blown nonwoven fabric and a polyester spunbonded nonwoven fabric with heat embossing or a heat calendar [0012]. Thus, anticipating all limitations of the instant claim.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being unpatentable over Itou et al. JP-09 001704 A.

5. Considering claim 1, Itou et al. teaches a sound-insulating construction that it is obtained by sandwiching: (a) synthetic resin cushioning laminate composed of at least two layers different in resin composition containing at least one layer that is made of polypropylene fiber nonwoven fabric of 5 - 25 mm in thickness, having the mean apparent density of 0.02 - 0.06 g / cm3 and composed of extra fine fibers having a fiber diameter of 0.1 - 10 μm; in (b) sound-insulating sheet; and (c) steel plate (Abstract).

Itou et al.'s noise insulation structure comprises layer (A) consisting of microfibers, that are preferably polypropylene microfibers due to its advantageous cost and easy of manufacturing; layers (B) and (C) which are nonwoven fabrics made from polyester fibers. Furthermore, layer (A) in Itou et al.'s insulation structure is a nonwoven fabric which consists of a microfiber in the range of 0.1-10-micrometer fiber diameter obtained by a melt blow process [0015 and 0016]; and the nonwoven fabric which constitutes (B) layer and (C) layer consists of polyester fiber which has a fiber diameter in the range of 1-50 deniers, and it is preferred that average apparent density gravity is the range of 0.01-0.06g[/cm cubic] [0022]. Layers (A), (B) and (C) are joined to form the laminated sound insulating structure by adhesion means comprising a backing material [0037]. Thus, reading into all limitations of the instant claim.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being unpatentable over Orimo et al. US Patent No. 5,817,408

7. Considering claim1, Orimo et al. teaches a sound insulating structure including low-density and high-density layers. The low-density layer has first and second fibrous layers and ranges from 0.5 to 1.5 kg/m.sup.2 in surface density. The first and second fibrous layers are respectively made of first and second thermoplastic synthetic fibers. The first and second fibers respectively have first and second single fiber diameters, each of which diameters is in a range of from 3 to 40 μm and first and second fiber lengths, each of which lengths is in a range of from 10 to 100 mm. The high-density

layer is formed on the low-density layer and is made of an air-impermeable polymer material and has a surface density that is higher than that of the low-density layer and ranges from 1 to 10 kg/m.sup.2. The low-density layer is high in sound-absorption coefficient and at the same time low in spring constant. Therefore, the sound insulating structure becomes substantially improved in sound insulating capability (Abstract). Thus anticipating all limitations in the instant claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itou et al. JP-09 001704 A in view of Orimo et al. US Patent No. 5,817,408

10. Considering claim 2, Itou et al. teaches a sound-insulating structure that it is obtained by sandwiching: (a) synthetic resin cushioning laminate composed of at least two layers different in resin composition containing at least one layer that is made of polypropylene fiber nonwoven fabric of 5 - 25 mm in thickness, having the mean apparent density of 0.02 - 0.06 g / cm3 and composed of extra fine fibers having a fiber diameter of 0.1 - 10 μm; in (b) sound-insulating sheet; and (c) steel plate (Abstract).

Itou et al.'s noise insulation structure comprises layer (A) consisting of microfibers, that are preferably polypropylene microfibers due to its advantageous cost and easy of manufacturing; layers (B) and (C) which are nonwoven fabrics made from polyester fibers. Furthermore, layer (A) in Itou et al.'s insulation structure is a nonwoven fabric which consists of a microfiber in the range of 0.1-10-micrometer fiber diameter obtained by a melt blow process [0015 and 0016]; and the nonwoven fabric which constitutes (B) layer and (C) layer consists of polyester fiber which has a fiber diameter in the range of 1-50 deniers, and it is preferred that average apparent density gravity is the range of 0.01-0.06g[/cm cubic] [0022]. Layers (A), (B) and (C) are joined to form the laminated sound insulating structure by adhesion means comprising a backing material [0037]. While Itou et al. teaches polypropylene fibers, it does not disclose that layer (A) comprises short fibers of polyester having average diameter of about 25 microns, in addition to the polypropylene extra fine fibers.

Orimo et al. teaches in the embodiment illustrated in FIG. 1 a sound insulating structure 20 that serves to prevent noise transmission from engine bay to passenger compartment. Furthermore, the sound insulating structure 20 has a low-density layer 24 and a high-density layer 26. These layers constitute a sound-insulating integral laminate and are molded in a manner to conform to the surface configuration of the dash panel 22, as illustrated. The low-density layer 24 has at least two fibrous layers such as first and second fibrous layers 28, 30. As clarified hereinafter, according to the present invention, for example, the kind and the amount of fibers constituting each of the first and second fibrous layers 28, 30 are respectively particularly specified. Thus, the sound

insulating structure 20 becomes substantially improved in sound insulating capability (Col. 2, lines 28-39).

Moreover, Orimo et al. also teaches that the low-density layer 24 is a collective body of staples of thermoplastic synthetic fibers, such as nonwoven fabric, which have a single fiber diameter of from 3 to 40 μm and a fiber length of from 10 to 100 mm. The thermoplastic synthetic fibers used for the low-density layer 24 are preferably linear polyester fibers containing a main component of a general-purpose polyethylene terephthalate from the viewpoints of commercial availability in the market, mechanical strength, elastic characteristics, and cost performance. Other examples of the thermoplastic synthetic fibers are linear polyester fibers containing main components other than polyethylene terephthalate, nylon fibers, polyacrylonitrile fibers, polyacetate fibers, polyethylene fibers and polypropylene fibers (Col. 3, lines 22-31).

Furthermore, in a preferred embodiment Orimo et al. teaches that the thermoplastic synthetic fibers of the first fibrous layer (sound absorbing layer) 28 are made up of a combination of 45-90 wt% of a fiber A having a single fiber diameter of from 3 to 20 μm, 5-30 wt% of a fiber B having a single fiber diameter of from 20 to 40 μm, and 5-25 wt% of a fiber C that has a single fiber diameter of from 3 to 20 μm and a softening point that is at least 20.degree C. lower than the lowest of softening points of the fibers A and B. This sound absorbing layer 28 provides the low-density layer 24 with sound absorbing capability (Col. 4, lines 62-68 and Col. 5, lines 1-5).

Orimo et al. also teaches that the inclusion of such fiber B provides the sound absorbing layer with a capability to maintain its original shape. It is preferable to use the

fiber B in an amount of at least 5 wt%, in order to maintain the shape of the sound absorbing layer. If it is less than 5 wt%, the sound absorbing layer may be deformed due to its insufficient rigidity. Thus, it may become difficult to maintain the sound absorbing layer to have the original thickness (Col.5, lines 37-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the polypropylene microfibers in layer (A) in Itou et al.'s noise insulation structure with polyester fibers B having a single fiber diameter of from 20 to 40 μm, as taught by Orimo et al., when it is desired to enhance the rigidity of layer (A) to prevent undesirable deformation of said layer, thus improving the overall performance of the sound absorbing laminated material.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICARDO E. LOPEZ whose telephone number is (571)-270-1150. The examiner can normally be reached on Monday to Thursday 8:00 am-5:30pm EST, and every other Friday from 8:00 am to 4:30 pm..

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)-272-1515. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/REL/
Ricardo E. Lopez
Patent Examiner, Art Unit 1794
March 18, 2010

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794